

REMARKS

At the outset, Applicants wish to thank Examiner Patel for the courtesies extended to Applicants' representatives during the August 4, 2003 telephone interview. The substance of the interview is incorporated in the following remarks.

Summary of the Office Action

Claim 2 stands rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Claims 1 and 4 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,488,262 to *Takamura*. Claim 1 stands rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Japanese Patent No. JP 402242577A to *Kagawa*. Claims 3, 5-8, and 10 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Takamura* or *Kagawa* and common knowledge in the art.

Summary of the Response to the Office Action

Applicants amend claim 2 to correct an error in understanding. Claims 3-8 and 10 are amended to add an omitted word. Accordingly, claims 1-8 and 10 are pending for further consideration.

All Claims are Allowable

Claim 2 was rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Claim 2 was amended to re-organize the claim and correct an error in the Applicants' representative's understanding. It is respectfully submitted that claim 2 is in compliance with 35 U.S.C. § 112, second paragraph. Accordingly, it is respectfully requested that the rejections under 35 U.S.C. § 112, second paragraph, be withdrawn.

All Subject Matter Complies With 35 U.S.C. § 103(a)

Claims 1 and 4 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,488,262 to *Takamura*. Claim 1 stands rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Japanese Patent No. JP 402242577A to *Kagawa*. These rejections are respectfully traversed for at least the following reasons.

Applicants respectfully submit that neither *Takamura* nor *Kagawa* teach or suggest at least the feature of a laser weld to join the body and the first tip as recited in independent claim 1. As described in the specification at pages 6-8, the tip for the center electrode and the basic body are formed of materials that have a large difference in their melting points. Because of the materials selected and the fact that the center electrode is required to have a thin end in order to improve ignitability and reduce discharge voltage, laser welding is required. This is because conventional electric resistance welding will create a protuberance at the tip and may create buckling in the basic body. The protuberance rapidly advances consumption of the tip. If the tip is then ground by a cutting tool to remove the protuberance, the weld strength decreases and the tip may fall off. If buckling occurs in the basic body, the body must be ground by a cutting tool and repaired. Depending on the degree of buckling, the basic body may not be able to be inserted into the insulator.

If a laser weld is used, the protuberance at the tip and buckling of the basic body never occurs. Subsequently, the disadvantages above-mentioned never occur. The tip is firmly joined and never falls off and the basic body does not buckle.

Takamura discloses a spark electrode that includes a stress relieving layer 41 of composite tip 43 that is resistance welded to earth electrode 30. (See *Takamura* specification

column 4 lines 1-10). *Kagawa* discloses a typical spark plug for internal combustion engine that includes a stress relaxation layer 7. However, neither *Takamura* nor *Kagawa* teach or suggest a spark plug that includes at least the feature of a laser weld to join the body and the first tip as recited in independent claim 1. Accordingly, it is respectfully submitted that the rejections under 35 U.S.C. § 103(a) are in error because neither reference teaches or suggests each and every feature of Applicants' claimed invention. Withdrawal of the rejection is respectfully requested.

To establish a *prima facie* case of obviousness, three basic criteria must be met (see MPEP §§ 2142-2143). First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art references must teach or suggest all the claim limitations.

In the present case, neither *Takamura* nor *Kagawa*, either alone or in combination teaches or suggests at least the features of a "basic body and the first tip joined by a laser weld." Thus, the Office Action fails to establish a *prima facie* case of obviousness because it does not teach all the recited claim features. Therefore, Applicants respectfully request that the rejection of claims 1 and 4 under 35 U.S.C. § 103 be withdrawn.

Claims 3, 5-8, and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Takamura* or *Kagawa* and *common knowledge in the art*. These rejections are respectfully traversed for at least the following reasons.

In the present case, neither *Takamura* nor *Kagawa* nor *common knowledge in the art*, either alone or in combination teach or suggest at least the features of a "basic body and the first tip joined by a laser weld." Thus, the Office Action fails to establish a *prima facie* case of

obviousness because it does not teach all the recited claim features. Therefore, Applicants respectfully request that the rejection of claims 3, 5-8, and 10 under 35 U.S.C. § 103 be withdrawn.

CONCLUSION

In view of the foregoing, Applicants respectfully request entry of the amendments, reconsideration, and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of the response, the Examiner is invited to contact the Applicants' undersigned representative to expedite prosecution.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. §1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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Date: August 22, 2003

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